ABSTRACT

An arbiter circuit is provided for resolving a plurality of N request signals received from a plurality of agents requesting access to a resource. The arbiter circuit includes: a token distribution circuit responsive to a first clock signal defining a grant cycle, and providing a plurality of token priority signals each corresponding with one of the agents, the distribution circuit being operative to prioritize one of the agents at the beginning of each grant cycle by asserting the token priority signal corresponding with the prioritized agent; means forming a token ring; and a plurality of N grant devices coupled together by the token ring, each of the grant devices corresponding with an associated one of the agents and being responsive to the corresponding request signal provided by the associated agent, and also being responsive to the token priority signal corresponding with the associated agent, and being further responsive to a corresponding token carry signal, each of the devices being operative to provide a grant signal to its associated agent if the corresponding request signal is asserted and either the corresponding token priority signal or the corresponding token carry signal is asserted. The token ring means may include a token look ahead device providing enhanced performance characteristics. The token look ahead device is operative to generate the token carry signals in a predictive manner to eliminate a ripple effect.